



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/983,057	10/23/2001	Isao Tsuruma	Q66788	8940

7590 05/13/2004
SUGHRUE MION, PLLC
2100 Pennsylvania Avenue, NW
Washington, DC 20037-3213

EXAMINER

LEE, JOHN D

ART UNIT	PAPER NUMBER
----------	--------------

2874

DATE MAILED: 05/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/983,057

Applicant(s)

TSURUMA, ISAO

Examiner

John D. Lee

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8 and 10-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-8, 11-14 and 18-20 is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 10 is/are rejected.
- 7) ☒ Claim(s) 15-17 and 21-26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

THE FINALITY OF THE PREVIOUS OFFICE ACTION IS WITHDRAWN.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

This Office action is responsive to applicant's communication filed on May 3, 2004. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, **the finality of that action is withdrawn**.

The objection to claim 20 has been obviated and is also withdrawn.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,652,674 to Mizuuchi et al (of record). Regarding claim 1, Mizuuchi et al discloses a wavelength converting element comprising an optical crystal substrate, inverted domains formed through the entire thickness of the substrate, and a waveguide which intersects the inverted domains and which can be formed by ion or proton implantation (see column 21, lines 1-4, column 24, lines 20-26, and column 39, lines 9-13). With respect to claims 3, 4, and 10, Mizuuchi et al discloses methods of manufacturing a wavelength converting element like that of claim 1, wherein the waveguide can be formed either before or after the inverted domains are formed (see column 39, lines 19-27). Note also that in all embodiments of Mizuuchi et al, the waveguide is a sub-surface waveguide, meaning that it is formed at "an interior" of the optical crystal substrate. Even though no specific example is given in Mizuuchi et al of a waveguide formed by "proton implantation", the statement in column 21, lines 1-4,

would make this waveguide formation entirely obvious to a person of ordinary skill in the art. First of all, proton exchange is specifically mentioned as a waveguide formation method. If protons are "exchanged" within the substrate, they are "implanted" therewithin. Even if this equivalency is not subscribed to, the words "such as" in column 21, lines 1-2, of the reference makes a proton implantation method obvious.

Claims 5-8, 11-14, and 18-20 are allowed. The reasons for allowability are clearly set forth in previous Office actions.

Claims 15-17 and 21-26 are objected to as being dependent upon a rejected claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. In addition to previously stated reasons for allowability, the claim 15 limitation that the waveguide be "substantially not exposed to an exterior of the substrate" is not suggested by Mizuuchi et al, since the Mizuuchi et al waveguide is always exposed at the substrate end surfaces. Additionally, the "central position" limitations and the "greater than $G \cdot \tan \theta$ " limitations of the newly added claims are neither disclosed nor suggested by Mizuuchi et al.

Applicant's arguments filed May 3, 2004, with respect to the above rejected claims, have been fully considered but are not deemed to be persuasive. Applicant continues to rely on the claim limitation of "proton implantation", arguing that Mizuuchi et al fails to disclose or suggest the use of proton implantation as a method for forming the waveguide. As stated in the rejection above, if protons are "exchanged" within the substrate, they are "implanted" therewithin, and even if this equivalency is not subscribed to, the words "such as" in column 21, lines 1-2, of the reference makes a

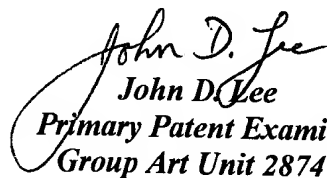
Art Unit: 2874

proton implantation method obvious. The quotation from Mizuuchi et al mentioned by applicant on page 9 (last paragraph) of the response is of particular importance. Mizuuchi et al clearly suggests that an "ion implantation" waveguide can be used, but applicant argues that this is not the same as a "proton implantation" waveguide, requesting that the Examiner provide evidence of the equivalency. The Examiner has to go no further than applicant's own admission in the claims to provide such evidence. Note that the last two lines of applicant's claim 1 state that the "ion implantation" waveguide is actually a "proton implantation" waveguide. This clearly shows that applicant understands and accepts the equivalency of "ion implantation" and "proton implantation" in forming these waveguides. The rejection of claims 1, 3, 4, and 10 is therefore maintained.

Although the finality of the previous Office action is withdrawn, the rejection set forth therein is hereby maintained, and **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR § 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and an advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR § 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning the merits of this communication should be directed to Examiner John D. Lee at telephone number (571) 272-2351. The Examiner's normal work schedule is Tuesday through Friday, 6:30 AM to 5:00 PM. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562, to the technical support staff supervisor (Team 8) at telephone number (571) 272-1564, or to the Technology Center 2800 Customer Service Office at telephone number (571) 272-1626.


John D. Lee
Primary Patent Examiner
Group Art Unit 2874
